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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,452	11/28/2003	Masahiko Kubo	117861	8268

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EXAMINER	
WILLS, LAWRENCE E	

ART UNIT	PAPER NUMBER
2625	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/722,452	KUBO, MASAHIKO	
	Examiner	Art Unit	
	LAWRENCE E. WILLS	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 9, 17, 18, and 19 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5, 8-13, 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Velde et al. (US Publication No. 2003/0169438) in view of Mahy (US Patent No. 5,878,195).

Regarding claims 1, 9, 17, 18, 19, Velde'438 teaches a **color image processing apparatus** (paragraph 0186, dedicated apparatus) for converting a **first color signal** (trajectory space, Fig. 1) including three variables (RGB, Fig. 1) into a **second color signal** (colorant space, Fig. 1) including N variables (CMYK, Fig. 1), where N is an integer, which is not smaller than five (colorant …, colorant p, suggest an infinate amount of integers for the image processing, Fig. 18, paragraph 0177). Velde'438 fails to teach a first conversion unit for determining (N-3) variables of the second color signal from the first color signal; and a second conversion unit for determining the remaining three variables of the second color signal on the basis of the

determined (N-3) variables of the second color signal and the first color signal so that the second color signal is colorimetrically equal to the first color signal.

Mahy'195 teaches a first conversion unit for determining (N-3) variables of the second color signal from the first color signal; (n-3 colorants are sampled, column 16, lines 25-30) and a second conversion unit for determining the remaining three variables (3-ink process, column 16, line 28) of the second color signal on the basis of the determined (N-3) variables (n-3 colorants in the printer model of the n-ink process to their sampling values, column 16, lines 28-30) of the second color signal and the first color signal so that the second color signal is colorimetrically equal to the first color signal (3-ink process inverted, column 16, lines 30-34).

Having a system of Velde'438 reference and then given the well-established teaching of Mahy'195 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image processing system of Velde'438 reference to include the color sampling and inversion methods taught by Mahy'195 reference. The improvement technique taught by Mahy'195 could be applied to Velde'438 and the results would have been predictable to one of ordinary skill in the art.

Regarding claims 2 and 10, the combination of Mahy'195 and Velde'438 teach the second conversion unit solves a function of the second color signal (Mahy'195, column 16, lines 23-34), which indicates a relation between the second color signal and a device-independent color signal on color system coordinates corresponding to the second color signal, using the first color signal (extracted from the n-ink process, column 16, lines 23-34) and the determined (N-3) variables of the second color signal (sampled n-3 colorants, column 16, lines 23-34) as an input.

Regarding claims 3 and 11, the combination of Mahy'195 and Velde'438 teach the wherein: 5 <N< 7, and the N variables of the second color signal include: four variables indicating yellow, magenta, cyan, and black (Velde'438, CMYK, Fig. 1); and at least one variable indicating one of red, green, and blue (green, claim 14)

Regarding claims 4 and 12, the combination of Mahy'195 and Velde'438 teach the wherein: 5 <N< 7; the (N-3) variables of the second color signal determined by the first conversion unit include: a variable indicating black; and at least one variable indicating one of red, green, and blue (Mahy'195, n-3 colorant, column 9, 44-47); and the three variables determined by the second conversion unit indicate yellow, magenta, and cyan (3-ink process, column 9, 44-47).

Regarding claims 5 and 13, the combination of Mahy'195 and Velde'438 teach the wherein: the first conversion unit: determines a UCR ratio concerning the (N-3) variables of the second color signal on the basis of the first color signal (cost functions, column 15, lines 1-31) ; determines maximum and minimum values of each of the.(N-3) variables of the second color signal, which are within a color gamut, on the basis of the first color signal; and determines the (N-3) variables of the second color signal to be between the maximum and minimum values on the basis of the UCR ratio concerning the (N-3) variables of the second color signal and the maximum and minimum values (minimum colorant, maximum colorant, column 15, lines 1-31).

Regarding claims 8 and 16, the combination of Mahy'195 and Velde'438 teach wherein the first color signal is an L*a*b* color signal (Velde'438, paragraph 0151).

4. Claims 6-7 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Velde et al. (US Publication No. 2003/0169438) in view of Mahy (US Patent No. 5,878,195) as applied to claims 1 and 9 above, and further in view of Poe et al. (US Patent No. 5,587,063).

Regarding claims 6 and 14, the combination of Mahy'195 and Velde'438 fails to teach the wherein: the first conversion unit: determines a UCR ratio concerning an achromatic component, a UCR ratio concerning a chromatic component, and three primary color signals, which represent the first color signal, on the basis of the first color signal; and performs a UCR processing on the basis of the UCR ratio concerning the achromatic component and the UCR ratio concerning the chromatic component to eliminate the achromatic component and the chromatic component from the three primary color signals, to thereby determine the (N-3) variables of the second color signal.

Poe'063 teach determines a UCR ratio concerning an achromatic component (pseudo-colorant signals are equal to one another, column 8, lines 12-15, in addition see Fig. 1, grey component), a UCR ratio concerning a chromatic component (at least one of the pseudo-colorant signals is zero, column 8, lines 15-16, in addition see Fig. 1, chromatic component), and three primary color signals (cmy, column 8, line 12), which represent the first color signal (cmy to CMYK to L*a*b*, which relates to the first color signal, column 7, line 40), on the basis of the first color signal; and performs a UCR processing on the basis of the UCR ratio concerning the

achromatic component and the UCR ratio concerning the chromatic component to eliminate the achromatic component and the chromatic component from the three primary color signals, to thereby determine the (N-3) variables of the second color signal (cmy vector can be resolved into the vector sum of a achromatic and a chromatic component, column 8, lines 12-16).

Having a system of Mahy'195 and Velde'438 reference and then given the well-established teaching of Poe'063 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Mahy'195 and Velde'438 reference as taught by Poe'063 reference, Poe'063 reference suggested automatically preserving color fidelity to a high degree of accuracy, column 3, lines 33-34, and doing so would have been a predictable image processing substitution.

Regarding claims 7 and 15, the combination of Mahy'195, Velde'438, and Poe'063 teach the wherein the three primary color signals indicate yellow, magenta, and cyan (cmy, column 8, lines 12-16, Poe'063).

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAWRENCE E. WILLS whose telephone number is (571)270-3145. The examiner can normally be reached on Monday-Friday 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/King Y. Poon/
Supervisory Patent Examiner, Art Unit 2625

LEW
August 17, 2008